have seen and particularly examined the two bars which gave way — they form the link next but one to the saddle or top of the chain on the east or Yarmouth side of the bridge. The fracture in the bar which first gave way is about eight inches from the other end, and there is the same distance from the lower end of the bar. It appears that in forming these bars the two circular ends and about six inches of the straight bar were first made. Between these a straight bar of the proper length was afterwards introduced, each of the pieces having been what is termed scarfed—that is, terminating diagonally, and not in a straight line across. These three pieces being heated and welded together made one bar or link. Then each bar had in it two joints, six inches from one and six inches from the other. In work of this kind there is great difficulty in getting iron so constructed as to make a perfect union or junction with the two ends. It was at these points that both bars in the present case broke. On minutely examining the fracture of the bar, it is evident that for some length of time, or from perhaps its original manufacture, the "weld" was imperfect—not more than one-third of the melting surface being united, and the other two-thirds presented a rusty surface. This would have been doubtless seen, as it is evident on a very slight inspection. The joint or weld of the other link is good—the corresponding one forming the bar. But I find that this bar (the second one) is one inch longer than the one which broke first; in the bar which broke second, putting the bolts through the eye at the lower end, I find that it does not fit, but passes obliquely, and is one inch longer than the other. This extension or difference of length is caused without doubt by the stretching of the unsupported rod before it broke, during the five minutes that it had the whole weight to carry. I have no doubt but that this caused it to stretch quite an inch in length. Having had the quality of the iron tested in a variety of ways, by a very intelligent blacksmith (Mr. Gooda), I find the straight pieces, or middle of the bar, to be much better than the other end; the straight piece is better than the end pieces, which contain the eyes, which are very coarse and inferior in quality. This (holding a bar up to the jury) is one of the middle pieces; not the one which broke, but one taken indiscriminately. I desired Mr. Gooda to lengthen it, and to apply a power to twist it. As far as I can judge this iron is good. I also desired a screw to be formed in another bar, and I am of opinion that that bar is also good. There is another straight piece between the two ends. I think generally that the quality of the ends is not according to the specifications, nor are they in my opinion proper for the purpose. Had any sufficient means been used to prove and test them, the inferiority of this iron must have been at once discovered. This is a piece of one of the ends, which is a very open, coarse-grained, and inferior piece of iron, and which broke when the blacksmith referred to was applying a hammer to the middle of the bar; the part which he did not strike broke like a piece of cast-iron. The blow was applied, remember, at some distance from where it broke. If care had been taken to test this iron properly, it is impossible but what this defect must have been discovered. No one could have expected that it was going to break, but it did. Another bar was taken by my direction for the purpose of testing it as to fibre, and it broke in pieces just in the way a carrot would do, and did not bend like a piece of stout fir timber, which it would have done had it been sound. I shall now make a few remarks upon the strength of the bridge, as compared with the load. Taking the load at the time to be all on the south chain, I find by calculation that the two rods of 2¼ inches by 1 are capable of supporting a temporary load of 56 tons without injury. Of course, I am assuming in that, that the bridge should be properly constructed. I need not say, that in order to arrive at any thing like accuracy, a great deal of calculation is required, because the deflection of the iron and the span of the bridge ought to be taken into account. I find that the strain, taking 400 individuals at an average of seven stones each, and allowing for the weight of the bridge, was, at the time of the accident, about 44 tons. Therefore, but for the defect in the quality of the iron and in the workmanship, the strength of the bridge exceeded the load upon it; but even then the excess was not sufficient where the effects of failure are so important. I say so because experiments are generally made with good iron, and at all times large allowances ought to be made for imperfections. If we suppose any of the pieces to be bad, as was the case here, then we have the strength less than the strain. The bridge appears to me to have been by no means too strong as originally formed, and the additions made to its width have been in the present case exceedingly injurious by the weight being placed outside the suspending chain. The weight had therefore to be carried entirely by that chain in place of being equally borne by all, which is the case when the weight is within the chain. In reference to the sufficiency of the bridge to carry the greatest load which could be placed upon it, I find that its strength is somewhere a little above the weight which it would carry, but so small as not to be practically sufficient, even without any allowance for imperfections. It is proper, however, to say, that the question is not, how many people can be packed *en masse* upon the bridge, although even that contingency ought to be provided for. After the bridge was widened the strength exceeded the strain, of course, less than it did before; but, even before, it does not appear to me to have been sufficiently strong to ensure perfect security, supposing a mass of people to have been packed upon it in the way in which I have described. It appears that on other occasions a very great number of persons had been upon the bridge, and that it had borne them without falling; the coroner has informed me that he has known twice or thrice the number upon it that was collected on the occasion alluded to, and therefore we have it evident that for the load at that time the strength of the bridge was adequate. It is also evident that when a bridge has been frequently loaded to the utmost which it will bear, it becomes weaker and weaker each time, and the bridge may ultimately give way, although at first it was sufficiently strong to resist the weight put upon it. I have now only a few remarks to add in the shape of general conclusions from what I have stated, and they are these:—

1. I consider the immediate cause of the accident to have been a defect in the joining or welding of the bar which first gave way.

2. That the quality of the iron and the workmanship, as far as I have been able to examine them, are defective; and I believe that the accident would not have happened had the work been properly examined at the time of construction.

3. That the widening appears to have been made without sufficient reference to the original strength of the bridge, and the weight which it had to support, and therefore that it acted as an aggravation of the evil.

4. That in the original construction of the bridge, the casualty of a great load, all on one side, does not appear to have been contemplated; if it had been, I think that the links on that side would have consisted of more than the two bars, any one of which was unequal to the load which the bridge was likely to carry.

I am bound to add, that in this investigation I have received every possible assistance from Mr. Cory with reference to all documents which were in his possession; this has enabled me to come to the conclusions I have done in less time, and I hope with a greater approximation to accuracy, than otherwise I could have done. I believe I have said all I have to say, as far as the case has gone. I can only add, that under the direction of Sir James Graham any question which any gentleman might put to me I shall be very glad to answer. Perhaps I may also add, that the whole weight of the bridge has been taken with great accuracy by Mr. Scoles, and that the addition to the width, as far as its own weight goes, is comparatively unimportant. The weight of the bridge, including the suspending chains, before the additional width was added, was 17 tons, 14 cwt. 3 qrs. 25 lb.; with the additional width, and the railing added, its weight was 20 tons, 8 cwt. 9 lb., making an addition of 2 tons, 13 cwt. The evil of it is, the footway being outside the chains, and therefore throwing the whole load upon the two suspending chains, without any part being thrown upon the chain on the north side.

In answer to questions put by Mr. Evans, Mr. Walker said—I saw in the original specifications that all the wrought iron should be proved by heating it red-hot; and, if this had been adopted, we should not have had the weldings which we have seen to-day. I observe, in the specifications, that all the materials to be used in the before-mentioned works should be of the best quality, and that it should be in the power of Mr. Cory, or his surveyor, to reject any materials which he or they might deem insufficient for the works. It was most undoubtedly the duty of the person undertaking to be the surveyor of these works to have ascertained by some such means as I have described the quality of the iron, and the manner in which it had been welded. If the surveyor, who is since dead, and whose duty it was to watch and see the contract carried out according to the specifications, had done so, this accident would not have happened, in all probability;—I mean that the defect must of necessity have been discovered. If a person had watched, as he should have done, the welding of every link, this defect would not have arisen: the defect in the quality of the iron must have been very apparent to any one at all acquainted with the subject. I have made my calculations as to the weight of the people upon the bridge upon six to the square yard. I should think that, practically, such crowding seldom, if ever, occurs. It is with reference to such packing that I have spoken, and I think the bridge would hardly have borne it. I think even if, as I believe to have been the case, the crowd consisted chiefly of women and children under fourteen, that seven stones is about a fair average weight. It is too much of course for children, but not enough for a good fat woman. It is perhaps rather a large average. I took it partly because it has been frequently adopted before. Looking at the contract generally, I do not think the gentlemen who built the bridge originally had taken the necessary precautions to have the work properly done, more particularly as regards the mode of doing it. I think the contractor should have given the engineer or inspector of the work the power of having it tested in such a way as he should think fit. I do not find that in the contract. The clause which empowers the engineer to reject any materials which he might deem unfit gave this power indirectly, and in a manner; but I think the surveyor ought to have the power to do so without such a clause as that.

By the Jury.—In my opinion, and speaking from the general result of experience in these matters, the defective iron bars were probably made in the country; they were sent here, and the good iron (the middle pieces) was supplied at Yarmouth and used here. The welding, or joining, was most likely done here. The difference between good and bad iron was shewn mainly by the breaking; good iron broke like a piece of good fir timber; bad, as I have before said, like a carrot—it snaps in two. He had estimated the number on the bridge at 400, because the statements he had heard were 300 and 500. If 300 were the proper number, you have only to deduct one-fourth from the estimated weight on the bridge.

GOVERNMENT GRANTS.—In the Parliamentary estimates, under the head of "Public Works and Buildings," we find the sum of 112,217*l.* appropriated to public buildings and royal palaces, 6,500*l.* to the palm-house at Kew, 8,395*l.* to the temporary houses of Parliament, 85,000*l.* to the new houses of Parliament, 3,836*l.* to Holyhead harbour and roads, 50,000*l.* to the Caledonian Canal, and 24,661*l.* to public buildings in Ireland. Under the head of "Education, Science, and Art," we find a sum of 75,000*l.* applied to public education in Great Britain, 75,000*l.* to public education in Ireland, 4,911*l.* to schools of design, 2,006*l.* to professors at Oxford and Cambridge, 4,540*l.* to the University of London, 7,380*l.* to universities in Scotland, 5,910*l.* to the Royal Dublin Society, 2,100*l.* to the Belfast Academical Institution, 52,040*l.* to the British Museum, 52,020*l.* to the British Museum buildings, 6,217*l.* to British Museum purchases, 1,500*l.* to the National Gallery, 8,850*l.* to the Museum of Economic Geology, 5,839*l.* to scientific works and experiments, 1,500*l.* for the monuments of Sir S. Smith, Lord Exmouth, and Lord De Saumarez.